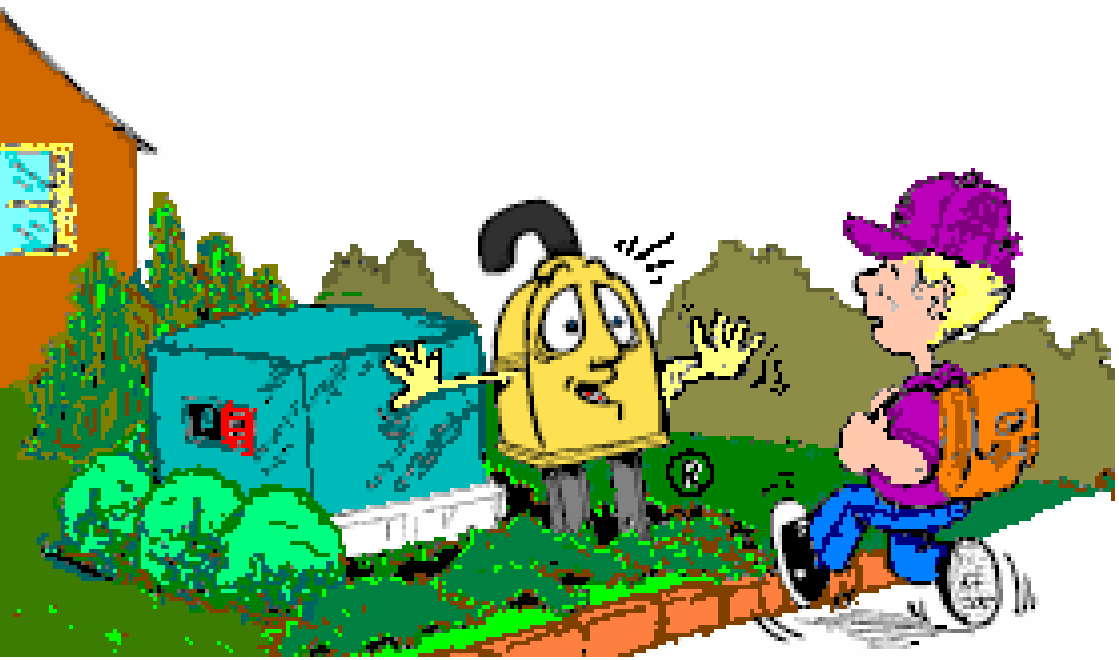
Outdoor Electrical Safety



Based on:

"Outdoor Electrical Safety Check"

Electrical Safety Foundation International

Presented by:

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Electrical Products Outdoors

Before Using…

- **Be sure it's intended for outdoor use:**
  - Check label and/or instruction manual.
  - Products for continuous outdoor use typically have heavily insulated cords and molded on plugs, to prevent entry of any moisture.
- **Make sure product is certified by a recognized testing laboratory.**
  - Certification = product design & manufacture complies with established safety standards.
  - Look for symbols of these & other internationally recognized testing laboratories:

- **Read, understand, follow, & keep instruction manual.**
- **Inspect for damaged cords, plugs, or wiring.**
  - Do not use if damaged. Have product serviced by qualified repair person before use.
  - If cord overheats: turn product off, unplug, & have serviced before further use.

Portable Appliances & Tools
Should…

Always Be:

- **Plugged in & turned on *ONLY* when in use.**
- **Turned off & locked into position before carrying, or hooking up attachments.**
- **Stored indoors, away from water & high heat, unless designed for continuous outdoor use.**
- **Used only when all safety guards are in place & working.**

Never Be:

- **Left unattended outdoors, even temporarily.**
  - **Remove starter keys.**
  - **Place device beyond the reach of children & adults not qualified to use it.**
- **Plugged in while:**
  - **Being carried or moved.**
  - **The switch is in the 'ON' position.**
- **Carried by their cords.**
- **Used while wet or close to water.**

- **Used near sharp edges, or where product, cord or plug could be damaged.**
- **Repaired by unqualified, untrained, and/or unauthorized persons.**

To Avoid Outdoor Electrical Accidents

Identify & Control Water Hazards

- **Outlets:**
  - Cover to prevent water from entering.
  - Use weather-protection covers on outdoor outlets.
  - New design can protect against weather while cord is plugged in.

Outlet GFCI

Circuit Breaker GFCI

- **Use a Ground Fault Circuit Interrupter (GFCI):**
  - Permanently installed in building wiring; OR
  - Portable device, installed between appliance & outlet; OR
  - Built into appliance power supply cord or extension cord.
- **Electrical Cords:**
  - Keep away from sinks, spigots, puddles, pools, ponds, sweating pipes, & hot tubs.
  - Do not use if you can see any damage to outer cover of cord.
  - Use cords with 3-prong plugs, & never remove the grounding plug.

Portable GFCI

- **Use on dry days only, unless designed for work in wet environments.**
- **If product falls into water:**
  - Do not reach into the water for it.
  - Make sure you're dry & not touching any water or metal, then:
    - Unplug immediately; OR
    - Disconnect the supply circuit immediately.
  - Only then can you retrieve the product.

To Avoid Outdoor Electrical Accidents

Beware of Hot Tub, Spa & Pool Hazards

- **Keep nearby outlets covered & dry between uses.**
- **Keep cords & plugs away from water sources, puddles, & bathers.**
- **Keep electrical devices far enough away to prevent falls into water.**
- **Never handle electrical items, plugs, cords, or outlets when wet.**
- **Use Ground Fault Circuit Interrupters (GFCIs) for hot tubs, spas, pools, & all nearby outlets.**
- **For swimming pools installed before GFCIs were required (1970's):**
  - **Add GFCI protection for15 volt & up branch circuits that power underwater lighting.**
  - **Add GFCI protection for all outlets within 20 feet of the pool.**

Note:

- **An isolated body of water (like your hot tub) can become electrified without involving a ground fault!**
- **Electric current moving from one pole to the opposite pole can pass through water (and anyone in that water).**
- **GFCIs may be unable to protect against shock & electrocution, since there is no current leak (ground fault) for them to detect & react to.**

To Avoid Outdoor Electrical Accidents

Reduce Hazards of Outdoor Maintenance Work

- Keep electrical cords out of path of lawn & garden equipment.
- Keep equipment in good operating condition, & use only as intended.
- Disconnect equipment from power source before:
  - Making adjustments.
  - Placing body parts within a tool's operating area.
- Keep ladders well away from overhead lines – don't make a fatal error!
  - Use only fiberglass or wood ladders near sources of electricity.
  - Don't let ladders contact overhead wires.
  - If a ladder starts to fall into an overhead line, let it go! Send someone to call the power company, while you stay & keep others from touching the ladder.
  - Don't touch or move ladders (or other objects) that are touching a power line, until the power company shuts off power to that line.
  - Don't touch a person who is touching a ladder that's contacting a power line. Use a dry object that won't conduct electricity (a long piece of wood or rope) to push or pull that person loose.
- Don't use powered or cordless tools near gaseous or explosive materials – sparks from the motor could cause a fire or explosion.
- Know that batteries & battery packs can explode in a fire.

To Avoid Outdoor Electrical Accidents

Reduce Hazards of Outdoor Maintenance Work

- **Before digging or drilling, call your utility protection center to locate buried power lines & other utilities.**

- **Stay off & keep away from pad-mounted electrical equipment.**
  - **If cabinet doors or locks have been tampered with, or left open, call the utility company immediately.**
- **Keep activities that create flammable vapors (gasoline, solvents, etc.):**
  - **In well-ventilated areas only.**
  - **Away from electrical items, especially those that easily make sparks (water heaters, switches, motors, etc.).**
- **Don't exceed the rated capacity of a branch circuit by running too many tools on one circuit – take extra care in using multi-outlet strips & cords.**
- **When recharging batteries:**
  - **Use the charging unit & procedure recommended by the manufacturer.**
  - **Plug the charger into an electrical outlet, never into an extension cord.**
  - **Choose a dry place away from radiators, heaters, stoves, flames, or chemicals.**
  - **Use only recommended size & type of replacement batteries.**
  - **Check instruction manual for charging problems; both the product & the charger may need trouble-shooting & service by a qualified person before further use.**

To Avoid Outdoor Electrical Accidents

Minimize Power Tool Hazards

- **Use a GFCI.**
- **Plug into a 3-pronged outlet that you know is grounded, unless using a double insulated tool.**
- **Use a 3-wired extension cord when required.**
- **Use extension cords no more than 100 feet long.**
- **Make sure all safety guards are in place & working before using tool.**
- **Follow all specific precautions recommended by tool manufacturer.**
- **Hold tool by insulated gripping surface, to avoid electrical shock.**
- **Don’t use near live wires or piping, especially when cutting or drilling into walls. De-energize utilities before work begins!**
- **Don’t use after tool has tripped a safety device, such as a GFCI – take it to an authorized service center for inspection & repair first.**

Extension Cord Basics

Use Them Properly!

- Use extension cords rated to supply the needed amount of power.
- Use only extension cords marked “For Outdoor Use”.
- Use a 3-wired extension cord with a 3-pronged plug, unless using a double insulated tool.
- Use extension cords of the shortest length possible (25 to 150 feet). Cords over 100 feet long risk a hazardous loss of power.
- Inspect before use, & don’t use if damaged in any way.
- Unwind cord before use, & push plugs in all the way to connect them.

- Don’t plug one extension cord into another.
- Don’t cover or walk on cords.
- Never leave an open line (electrical device connected to an extension cord plugged into an outlet), even for a minute. Unplug cords not in use.
- Don’t expose extension cords to snow or intense cold for long periods.
- Know that outdoor extension cords may need replacing in 3 to 4 years.

Extension Cord Basics

Use The Right Cord!

- **Electrical product instruction manuals tell the right size cord to use.**
- **Match device power demand (amperage) with the amperage rating of the extension cord.**
  - **Cord capacity rating should equal or exceed the capacity of the electrical device.**
  - **Device amperage ratings may range from “1 A” to “15 A”.**
  - **Find device amperage ratings marked on the nameplate.**
  - **Find cord amperage ratings marked on retail packaging and/or permanent labels.**
- **To convert amps to watts:**
  - **Multiply amps by 120 volts, to get watts.**
  - **Example: 10 amps (A) x 120 volts (V) = 1200 watts (W)**

- **Match device power demand (amperage) with the gauge of the cord.**
  - **Outdoor-use cords are usually 12 AWG (heavy) or 14 AWG (medium).**
  - **AWG = American Wire Gauge.**

For more information, see the Electrical Safety Foundation International brochure, *“Outdoor Electrical Safety Check”*, at:

http://www.esfi.org/esfilib/oesc/outdoorcheck.pdf